REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a supplement to the response filed on June 29, 2006, and is being submitted in conjunction with a Request for Continued Examination (RCE), in connection with the Final Office Action dated March 3, 2006 and the Advisory Action dated August 14, 2006. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Summary of the Interview

Applicants respectfully thank the Examiner for her consideration in having a telephone conference with Applicants' undersigned representative on August 15, 2006. As discussed during the telephone conference, Applicants' representative inquired whether the Examiner's comments in the Advisory Action noting that the scope of the claims was not commensurate with the evidence of record in the application suggested that amendments to the claims to further limit the scope of the invention would overcome the prior art of record. Specifically, Applicants' representative inquired whether the limitation of the non-magnetic intermediate layer being formed only of Ru and having a thickness of 0.5 nm would overcome the prior art of record. The Examiner indicated that such a limitation would distinguish over the prior art.

Status of the Claims

As outlined above, claims 1-2, 4, 6-10 stand for consideration in this application, wherein claim 5 is being canceled without prejudice or disclaimer, while claims 1, 2, 8 and 9 are being amended to correct formal errors and to more particularly point out and distinctly claim the subject invention.

All amendments to the application are fully supported therein, including Table 5 on page 29 and page 30, line 11 – page 31, line 22 of the specification. Applicant hereby submits that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejections

Claims 1-2, 5-6 and 8-10 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Doerner et al (US 6537684). Claim 4 was rejected under 35 U.S.C.

§103(a) as being allegedly unpatentable over Doerner in view of Wang et al (US 2002/0098389). Further, claim 7 was rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Doerner in view of Sakawaki et al (US 2002/0160234). The above rejections are respectfully traversed for the reasons set forth below.

The present invention as recited in claim 1 is directed to a magnetic recording medium comprising: a substrate; an underlayer formed over the substrate, the underlayer including Cr and Ti; a magnetic recording layer formed directly on the underlayer, having a first magnetic layer, a second magnetic layer and, a non-magnetic intermediate layer formed between the first magnetic layer and the second magnetic layer, wherein the first magnetic layer consisting of Co, Pt, and Cr is formed directly on the underlayer that includes Cr and Ti. The non-magnetic intermediate layer formed directly on the first magnetic layer is made of Ru. The non-magnetic intermediate layer has a thickness of 0.3 to 0.9 nm. The second magnetic layer formed directly on the non-magnetic intermediate layer contains Co as a main component. The first magnetic layer and the second magnetic layer are magnetized in the antiparallel direction in the absence of an applied magnetic field, and the first magnetic layer is formed to contain an amount of Pt no less than 3 at% and no more than 9 at% so as to improve a signal-to-noise ratio of the magnetic recording medium.

The present invention as recited in claim 2 is directed to a magnetic recording medium including a substrate and a magnetic recording layer formed thereon with an underlayer interposed between them, wherein the magnetic recording layer comprises: a first magnetic layer containing only Co, Cr and Pt formed directly on the underlayer, a second magnetic layer, and a non-magnetic intermediate layer formed between the first magnetic layer and the second magnetic layer. The first magnetic layer and the second magnetic layer are magnetized in the antiparallel direction in the absence of an applied magnetic field, the first magnetic layer being formed to contain an amount of Pt that is no less than 3 at % and no more than 9 at % so as to improve a signal-to-noise ratio of the magnetic recording medium. The magnetic recording layer is formed directly on the underlayer, wherein the underlayer includes Cr and Ti, the non-magnetic intermediate layer is formed directly on the first magnetic layer, the second magnetic layer is formed directly on the non-magnetic intermediate layer, the non-magnetic intermediate layer formed directly on the first magnetic layer is made of Ru, and the non-magnetic intermediate layer has a thickness of 0.3 to 0.9 nm.

The present invention as recited in claim 8 is directed to a magnetic storage which comprises a magnetic recording medium, a drive unit to turn the magnetic recording medium, a magnetic head consisting of a writing part and a reading part, a means to move the magnetic head relative to the magnetic recording medium, and a signal processing unit to send and receive signals to and from the magnetic head, wherein the reading part of the magnetic head is a giant magneto-resistive effect element or has a tunnel junction which produces the magneto-resistive effect, and the magnetic recording medium which is comprised of: a substrate; an underlayer formed over the substrate, the underlayer including Cr and Ti; and a magnetic recording layer formed directly on the underlayer, having a first magnetic layer, a second magnetic layer and, a non-magnetic intermediate layer formed between the first magnetic layer and the second magnetic layer. The first magnetic layer comprising only Co, Pt, and Cr is formed directly on the underlayer that includes Cr and Ti. The non-magnetic intermediate layer formed directly on the first magnetic layer is made of Ru, and the non-magnetic intermediate layer has a thickness of 0.3 to 0.9 nm. The second magnetic layer formed directly on the non-magnetic intermediate layer contains Co as a main component. The first magnetic layer and the second magnetic layer are magnetized in the antiparallel direction in the absence of an applied magnetic field, and the first magnetic layer is formed to contain an amount of Pt that is no less than 3 at% and no more than 9 at% so as to improve a signal-to-noise ratio of the magnetic recording medium.

Lastly, the present invention as recited in claim 9 is directed to a magnetic storage which comprises a magnetic recording medium, a drive unit to turn the magnetic recording medium, a magnetic head consisting of a writing part and a reading part, a means to move the magnetic head relative to the magnetic recording medium, and a signal processing unit to send and receive signals to and from the magnetic head, wherein the reading part of the magnetic head is a giant magneto-resistive effect element or has a tunnel junction which produces the magneto-resistive effect, and the magnetic recording medium is one which is comprised of: a substrate and a magnetic recording layer formed thereon with an underlayer interposed between them. The magnetic recording layer comprises: a first magnetic layer containing only Co, Cr and Pt formed directly on the underlayer, a second magnetic layer, and a non-magnetic intermediate layer formed between the first magnetic layer and the second magnetic layer. The first magnetic layer and the second magnetic layer are magnetized in the antiparallel direction in the absence of an applied magnetic field, the first magnetic layer being formed to contain an amount of Pt that is no less than 3 at % and no more than 9 at % so as to improve a signal-to-noise ratio of the magnetic recording medium,

wherein the magnetic recording layer is formed directly on the underlayer, the underlayer includes Cr and Ti, the non-magnetic intermediate layer is formed directly on the first magnetic layer, the second magnetic layer is formed directly on the non-magnetic intermediate layer, the non-magnetic intermediate layer formed directly on the first magnetic layer is made of Ru, and the non-magnetic intermediate layer has a thickness of 0.3 to 0.9 nm.

In the Advisory Action, the Examiner alleged that the data of record was not commensurate in scope with the claimed invention on the grounds that the data set forth in the specification (Figs. 16-17 and description thereof) and that each of the examples set forth in the declaration are assumed to have an Ru intermediate layer having a thickness of 0.5 nm.

In order to expedite the prosecution of this case, Applicants are hereby amending claims 1, 2, 8, and 9 are being amended so as to limit the formation of the intermediate layer to Ru. However, with respect to the thickness of the intermediate layer, Applicants will point out that the specification describes in Table 5 and on page 30, line 11 to page 31, line 22 that Slf/Nd is improved by providing the intermediate layer with a thickness from 0.3 nm – 0.9 nm. Thus, claims 1, 2, 8 and 9 are being amended accordingly. Consequently, Applicants will contend that the claims are now commensurate with the scope of the present invention as disclosed in the specification and the evidence of record, and that the claims would be commensurate in scope with the showing of unexpected results.

In view of all the above and in conjunction with the previously submitted response of June 29, 2006, Applicants will now contend that the present invention as now claimed is distinguishable and thereby allowable over the prior art of record.

Conclusion

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicant's undersigned representative at the address and phone number indicated below.

Respectfully submitted,

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